

**REMARKS**

Claims 1-12 are pending in this application. By this Amendment, claims 1, 4-6, and 10-12 are amended. No new matter is added by this Amendment. Support for the Amendment can be found in at least Applicant's original specification, page 8, lines 12-15, page 9, line 25-page 10, line 3, page 5, lines 8-11, page 16, lines 17-21, page 18, lines 8-16, and Fig. 1, for example. Reconsideration of the application in view of the above amendments and the following remarks is respectfully requested.

**I. The Claims Define Patentable Subject Matter**

The Office Action rejects claims 1-6 and 9-12 under 35 U.S.C. §102(b) as allegedly being anticipated by JP 2003-346845 to Ushio et al. (hereinafter "Ushio"); and claims 1-6 and 9-12 under 35 U.S.C. §103(a) as allegedly being unpatentable over Ushio. The rejection is respectfully traversed.

With regard to independent claim 1, Ushio fails to disclose a target set temperature; estimating the electric conductivity at the target set temperature based on the electric conductivity of the coolant, the temperature of the coolant, and a correlation between the temperature and the conductivity of the coolant; and controlling the parameter related to the temperature of the coolant so as to maintain the electric conductivity at the target set temperature within the target electric conductivity range.

Instead, Ushio only discloses using temperature to determine the temperature compensation multiplier prior to computing the activity ratio of the exchange resin (see Ushio's paragraph [0053]). Further, any temperature used in Ushio is a measured temperature measured at start-up and at a later predetermined time, and thus is not a target set temperature where temperature of the coolant is controlled so as to maintain the electric conductivity at the target set temperature, as recited in claim 1.

Further, Ushio discloses calculating the electrical conductivity of the cooling water based on an ion-exchange-resin assumption activity ratio (see Ushio's paragraph [0062]). Ushio is silent regarding estimating the electric conductivity at the target set temperature based on the electric conductivity of the coolant, the temperature of the coolant, and a correlation between the temperature and the conductivity of the coolant, as recited in claim 1.

In contrast, Applicant's present specification discloses that estimating the electric conductivity at the target set temperature in advance provides the advantage that the electric conductivity at the target set temperature can be controlled so as to be held within the appropriate range (see Applicant's original specification, page 6, lines 7-14).

In addition, Ushio discloses flowing cooling water for a predetermined amount of time whereby an average stream flow of the cooling water is calculated. A rate of decrease of the electrical conductivity in the predetermined time is determined and the activity ratio of the ion exchange resin is computed by applying the rate of decrease of the electrical conductivity for the average flow stream of the cooling water. The computed ratio is compared to a predetermined value. If the activity ratio of the ion exchange resin is lower than a predetermined value, the flow control valve 11 is operated for by-pass flow, and when the activity ratio is greater than a predetermined value, the flow control valve 11 is operated to increase the flow to the ion exchange machine 4 (see Ushio's paragraphs [0054]-[0057] and [0077]). Thus, Ushio's control is based on the flow rate of the cooling water to the ion-exchanger 4 without any target set temperature being taken into account.

In contrast, claim 1 recites that the parameter related to the temperature of the coolant is controlled so as to maintain the electric conductivity of the target set temperature within the target electric conductivity range. This feature provides the advantage that electric conductivity of a liquid coolant can be maintained even if the temperature of the liquid

coolant changes following the change in the operation state of the fuel cell (see Applicant's original specification, page 2, lines 11-14).

Independent claim 7 shares features similar to those features of independent claim 1. Accordingly, claim 7 overcomes Ushio for at least the same reasons listed above for claim 1.

In addition, the dependent claims are allowable at least for their dependence on allowable claims 1 and 7 as well as for the additional features they recite.

Accordingly, Applicant respectfully requests withdrawal of the rejection.

## **II. Response to Restriction**

The Office Action asserts that claims 7 and 8 have a special technical feature of decreasing the target set temperature when the electric conductivity of the target set temperature exceeds the target electric conductivity range. The Office Action appears to assert that because claims 7 and 8 have this feature, claims 1 and 7 do not share any corresponding special technical features.

The expression "special technical feature" is defined in PCT Rule 13.2 as meaning those technical features that define a contribution which each of the inventions, considered as a whole, makes over the prior art (see MPEP §1850(II)).

For the reasons set forth above, claim 1 and claim 7 share at least one special technical feature of the claimed invention that defines over the references. Specifically, claims 1 and 7 share a similar feature of estimating the electric conductivity at the target set temperature based on the electric conductivity of the coolant, the temperature of the coolant, and the correlation between the temperature and the conductivity of the coolant. Further, claims 1 and 7 share a similar feature that "based on a correlation between a parameter related to the temperature of the coolant and the electric conductivity of the coolant, when the electric conductivity of the target set temperature exceeds a target electric conductivity range, the

parameter related to the temperature of the coolant is controlled so as to maintain the electric conductivity at the target set temperature within the target electric conductivity range."

Further, although lack of unity of invention should be raised in clear cases, it should neither be raised nor maintained on the basis of a narrow, literal or academic approach. If there is a single general inventive concept that appears novel and involves inventive step, then there is unity of invention and an objection of lack of unity does not arise (see MPEP §1850(II)). The benefit of any doubt is given to the Applicant (see MPEP §1850(II)).

Claims 2-6 and 8-12 depend from one of claims 1 and 7. Thus, claims 1-12 relate to a single general inventive concept under PCT Rule 13.1.

Reconsideration and withdrawal of the Restriction Requirement are respectfully requested.

### **III. Conclusion**

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance of the claims are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,



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